

5 1. Optical device for helmet viewfinder
presenting a collimated image to a user, comprising an
imager (20) and an off-axis spherical concave mirror
(1), characterized in that it comprises optical means
for correcting the distortion of the image presented to
the user which is due to the off-axis spherical concave
mirror (1), said means comprising a diffractive field
10 mirror (21).

15 2. The device as claimed in claim 1,
characterized in that the diffractive field mirror (21)
is situated in the vicinity of an intermediate image
(25, 27) formed by said optical device, vicinity whose
extent is limited to the maximum distance of this image
beyond which the resolution of the image at the center
of the field of the device is degraded.

20 3. The device as claimed in claim 2,
characterized in that the diffractive mirror (21) is
placed said maximum distance from the intermediate
image (25, 27).

25 4. The device as claimed in one of the
preceding claims, characterized in that the diffractive
field mirror (21) is a digital plane numerical hologram
with discrete variations.

5. The device as claimed in one of claims 1 to
3, characterized in that the diffractive field mirror
(21) is a plane numerical hologram with continuous
profile.

30 6. The device as claimed in either of claims 4
and 5, characterized in that the face of the support of
the diffractive field mirror (21) in which the hologram
is made is not plane.

35 7. The device as claimed in one of claims 1 to
3, characterized in that the diffractive field mirror
(21) is a volume hologram recorded in a photosensitive
material.

8. The device as claimed in claim 7, characterized in that the photosensitive material is on a transparent support of variable optical index.

9. The device as claimed in claim 7, characterized in that the photosensitive material is on a transparent support of variable thickness.

10. The device as claimed in one of the preceding claims, characterized in that it comprises a power group (22) placed between the spherical mirror (1) and diffractive mirror (21) which focuses a first intermediate image (25) in proximity to said spherical mirror (1) onto a second intermediate image (27).

11. The device as claimed in claim 10, characterized in that the diffractive field mirror (21) is situated in the vicinity of the second intermediate image (27).

12. The device as claimed in one of the preceding claims, characterized in that it comprises one or more optical power groups (22) or optical relay groups (29) placed in the path of the rays between the imager and the spherical mirror, upstream and/or downstream of the diffractive mirror (21), this or these groups comprising one or more lenses at least one of which is convergent so as to give an aperture of the beams incident on the diffractive mirror which is very small in comparison with the aperture of the beams incident on the spherical mirror.

13. The device as claimed in one of the preceding claims, characterized in that the spherical mirror (1) is semi-transparent.